

a second antenna unit coupled to the first antenna unit and adapted to maintain a local link with the wireless communications device within a local coverage area of the repeater, the second antenna unit comprising an integral RF signal processor adapted to selectively amplify respective uplink and downlink RF signals of the wireless communications device.

21. A repeater as claimed in claim 20, wherein the first antenna unit comprises:

a first antenna adapted to receive downlink RF signals from the transceiver, and transmit uplink RF signals to the transceiver; and

a first amplifier adapted to amplify the downlink RF signals received by the first antenna, and adjust a transmit power level of the uplink RF signals transmitted by the first antenna.

22. A repeater as claimed in claim 21, wherein the first antenna is integrated with the first amplifier.

23. A repeater as claimed in claim 21, wherein the first antenna is adapted to transmit and receive RF signals within a relatively narrow beam.

24. A repeater as claimed in claim 21, wherein the first amplifier comprises:

a first power level detector adapted to detect a power level of the downlink RF signals received from the transceiver; and

a first variable amplifier adapted to adjust the transmit power level of the uplink RF signals in accordance with the detected power level of the downlink RF signals.

25. A repeater as claimed in claim 20, wherein the second antenna unit further comprises a respective second antenna adapted to receive uplink RF signals from the WCD, and transmit downlink RF signals to the WCD.

26. A repeater as claimed in claim 25, wherein the second antenna is adapted to transmit and receive RF signals within a relatively wide beam.

27. A repeater as claimed in claim 25, wherein the second antenna is integrated with the RF signal processor.

28. A repeater as claimed in claim 20, wherein the RF signal processor comprises:  
  
uplink and downlink signal paths adapted to convey RF signal traffic of respective uplink and downlink channels of the wireless communications network;  
  
a detector adapted to detect at least one of the uplink and downlink RF signals of the WCD within the uplink and downlink signal paths; and  
  
a controller adapted to selectively control a gain of each of the uplink and downlink signal paths.

29. A repeater as claimed in claim 28, wherein respective bandwidths of each of the uplink and downlink signal paths substantially correspond with those of the uplink and downlink channels of the wireless communications network.

30. A repeater as claimed in claim 28, wherein the detector is adapted to acquire weak desired RF signals embedded within a broadband channel.

31. A repeater as claimed in claim 30, wherein the detector comprises:  
  
a narrow-band path adapted to sample RF signal traffic within a selected one of the uplink and downlink paths; and  
  
a signal detector adapted to detect at least a power level of a weak desired signal within the sample.

32. A repeater as claimed in claim 31, wherein a sample bandwidth of the sample is selected based on an anticipated signal-to-noise ratio within the selected path, and a desired rate of sampling across the entire bandwidth of the selected path.

33. An adaptive repeater as claimed in claim 28, wherein the controller comprises:  
  
a digital micro-controller adapted to generate a gain control signal in response to at least the detected RF signals; and

at least one respective gain control block disposed in each of the uplink and downlink paths, each gain control block being adapted to control a gain of the respective path in accordance with the gain control signal.

34. A repeater as claimed in claim 33, wherein the digital micro-controller is adapted to generate respective uplink and downlink gain control signals for selectively controlling respective gain control blocks in each of the uplink and downlink signal paths.

35. A repeater as claimed in claim 33, wherein the digital micro-controller is adapted to control the gain of the downlink path in accordance with a power level of RF signals detected in the uplink path, whereby a coverage area of the repeater is dynamically adjusted in accordance with at least a distance between the repeater and the WCD.

#### **REMARKS**

As a result of the foregoing amendments, a total of 18 claims remain in the present application. Original claims 1-17 have been cancelled in favor of new claims 20-35. Original claims 18 and 19 remain unchanged.

The foregoing claim amendments are presented in order to more clearly define the subject matter of the present invention. In preparing new claims 20-36, careful attention was